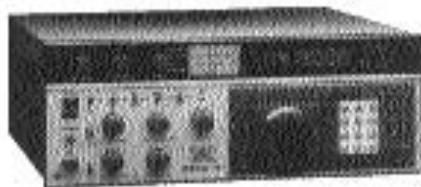


1234567890
ACHTUNG!



Numbers Stations

A Beginner's Guide

What Numbers Stations are.

Numbers Stations are radio broadcasts that appear in the Shortwave bands twenty-four hours a day, on many different frequencies. They are used to transmit short text messages. There are three different types of broadcast: voices reading groups of numbers or phonetic letters, Morse transmissions sending groups of numbers or letters and noise stations, transmitting several different types of noise.

What Numbers Stations are not.

Numbers Stations are not licensed in the conventional sense, and there is no easy way to find information on any aspect of Numbers Stations from the government agencies that are concerned with radio use/misuse. They are not weather forecasts, or shipping broadcasts.

Anatomy of Numbers Stations transmissions.

In the case of a voice numbers station, there will be one of several types of introduction, usually starting at the top or at some whole fraction of the hour. These introductions can be a single letter of the alphabet

keyed in Morse, or a piece of music played for several minutes, before a voice, in one of several languages, begins calling out numbers. The first numbers called are usually a three digit number. There is then a call to attention, signaled by the use of the word Attention or by some other device, such as bells, gongs or tones. A group count giving the number of message elements that are to be sent is then transmitted, followed by the groups which are sets of numbers or phonetically spoken letters, usually numbering five in each group, although there are stations that transmit four figure groups. At the end of the groups, there is sometimes a repeat of the groups, if not, there is an ending indicator, either by a spoken end or a repeat of the introduction music. Morse stations generally do not have music at the beginnings and endings. The message structure of Morse transmissions is identical to the structure of voice transmissions, save that everything is sent in Morse code. Each of the noise stations is unique. The one thing that binds them together is the extreme length of time that the broadcasts are on the air.

When did Numbers Stations begin?

The origins of Numbers Stations are shrouded in mystery. In all probability, the evolution of modern Numbers Stations is closely linked to the advances in cryptography over the last forty years. We also have an account, via the ENIGMA newsletter from the German Kurzwellenpanorama magazine of an Austrian Numbers Stations monitor, Anton Habsurg, dating from WW1. During WW2 the BBC was involved in sending messages to friends overseas which were coded messages to Special Operations Executive agents. From at least the beginning of the Cold War to today, encrypted clandestine messages have been routinely sent over Shortwave. The truth is, because there has never been any kind of public admission from an agency that uses Numbers Stations, we do not know anything about their true origins and the many pioneer cryptographers and engineers that made it all possible; indeed the whole subject, until this CD was produced, was an area known of only by dedicated Shortwave monitors and the agencies responsible for the transmissions.

Why do Numbers Stations exist?

Numbers Stations offer powerful features to the people that use them. They allow complete anonymity for the message recipient, who can be anywhere in the world receiving detailed text messages in complete security at any time of the day, for years at a time, without fear of detection.

How do Numbers Stations work?

Numbers Stations send enciphered messages in the form of groups of figures or letters using a cryptosystem known as a one time pad. In this system, two identical sets of random numbers, printed on numbered sheets are generated (the pad); one pad is kept by the sender and the other is kept by the recipient. When a message is to be sent, the original message or plaintext, is mathematically added to one of the random numbers on the pad. The random number used is predetermined by the sender and recipient so that both are in sync. When the message is sent over the air, the recipient transcribes it by hand, and then subtracts the random number on her pad from the message she has just received. The random number is then discarded. In her hands, she now has the original plaintext message, sent to her over an open channel with zero possibility of enemy decryption. The only way that messages sent with one time pads can be deciphered is if your enemy retrieves your set of random numbers, or pad, or if the sender re-uses a pad.

Who uses Numbers Stations?

The only agency that has admitted to running a Numbers Station is the one responsible for Station OLX in the Czech Republic. They will respond to QSL requests. This is an admission that they are transmitting the two forms of OLX, but that is all; there is no information on what the transmissions are for and who

the recipients are. Almost every other piece of information on who is responsible for Numbers Stations comes from the part-time investigations of dedicated listeners. No government or person will admit to transmitting them, and only recently, due to the release of this CD set has GCHQ in the UK made its first ever public statement on Numbers Stations, saying that, "GCHQ are aware of the existence of Numbers Stations but cannot comment on operational matters". Do operational matters include The Lincolnshire Poacher which is believed to be of British origin? With direction finding equipment it is possible to track down the location of transmitting antennas, and in the case of Numbers Stations which use extremely powerful transmitters finding the more powerful stations has proved an easy task for investigators but what exactly does it mean when you find an antenna farm on US government property blasting numbers in Spanish? Where and who are the recipients?

Where and how to hear Numbers Stations.
You can hear Numbers Stations twenty-four hours a day, on the shortwave bands. The frequencies that they appear on are numerous; to begin with, try at the top of each hour, and the chances are you will find a Numbers Station, transmitting in either Morse or voice. The equipment you need is simple; any domestic quality Shortwave radio with a whip antenna will enable you to pick up Numbers Stations; note however that it is illegal

to listen to these transmissions in the United Kingdom. A radio with the ability to receive USB and LSB transmissions would be useful, since some stations transmit in these modes.

The future of Numbers Stations.
Numbers Station activity shows no signs of abating. The noise stations continue to baffle listeners in Europe, and stations, like Magnetic Fields and The Eastern Music Station are newcomers that have been identified. As the Conet Project goes to press, Enigma has announced the discovery of a new English language station, designated E22, and a Czech station, inactive since the end of the cold war, has suddenly resurfaced after six years of dormancy. Since Numbers Stations are clearly an efficient and secure form of transacting texts over long distances, it is unlikely that any government agency will ever admit to utilizing them. Numbers Stations fall outside of any Freedom of Information Act access (in countries where such Acts exist) because these stations are still relied upon for their required missions, and if the past behavior of the international and local radio authorities is anything to go by, no information will ever be forthcoming about these transmissions, save that which is painstakingly collected by the private activities of dedicated monitors. This is one of the most sensitive areas of government activity, and it is sure to baffle radio listeners for many years to come.



Ames



Philby



Pitts



Nicholson

Paranoia Contamination

My Introduction To Numbers Stations

Whilst tuning around the utility bands for some weather fax transmissions in December 1992, I ran across a station transmitting the voice of a woman reading out numbers in groups of five, in an American accent. I had heard the sound of Volmet before, but this was not at all like Volmet. It was not helpful in the way that the Volmet weather report transmissions are. Volmet tells you who is transmitting, the geographical origin of the transmission, and the purpose of the transmission. All of these features were missing from this station's output, which stopped with the word end after fifteen minutes. I logged the station, and continued my search for fax transmissions.

As the weeks went on, I discovered many more of these transmissions. One of the most shocking stations featured the sound of a child's voice. This station started its broadcast precisely on the hour by playing a series of short tones followed by several repetitions of a music box rendition of The Swedish Rhapsody. Then the sound of a female child began barking out numbers in German. This transmission invoked a sense of dismay as I asked myself, who could possibly utilize such an

unusual voice for no apparent reason?

When I bought Bill Laver's Shortwave International Frequency Handbook, a book of over 20,000 station loggings, I found out not only that no one really knew what these Numbers Stations were for, but that the locations of the transmitters was also unknown. This struck me as rather odd, because radio piracy is a crime that is taken very seriously in the northern hemisphere, and so if there were hundreds of rogue transmissions on an equal number of different frequencies, there was a great amount of airwave piracy that was going uninvestigated or ignored. If the Numbers Stations were pirates, then what audience were they transmitting for? If they were not pirates, then who was authorizing these clearly unlicensed stations? Sometimes, Numbers Stations can be heard interfering with air traffic control frequencies and utilities stations; this must wreak havoc with those organizations that use the limited resource of the radio spectrum for essential services like Radioteletype.

After listening to dozens of Numbers Stations of many types for over a year, I saw an advertisement for a book

called Intercepting Numbers Stations by Langley Pierce. I bought it. It had logs of many of the well known stations, analysis of the transmission formats and even the names of people who have admitted to being involved in receiving messages from them.

It appears that the Numbers Stations are run by our old friends the CIA, SIS, BND, MOSSAD, StB, DIE, MfS, UDBA, and the now renamed KGB. That list leaves out the non-European agencies that operate Numbers Stations, such as Chinese Intelligence. At first this struck me as being a ridiculous explanation; why should these intelligence agencies use an antiquated system like short wave to communicate instructions? After all, international direct-dial telephony is universally available, military grade Public Key Cryptography is in daily use by millions... why would these agencies, which are always assumed (to keep us in fear?) to have access to technology that is at least 30 years ahead of what is available to the general population, opt for the methods of their grandfathers?

The answer lies in anonymity and Traffic Analysis. Imagine a CIA spy who is posing as a Turkish taxi driver. A taxi driver can listen to the radio without arousing suspicion. If however, he was caught sending PGP encrypted files down an acoustic coupler equipped 28.8k PCMCIA modem slotted into a palmtop 586 from a public phone box, someone would, at the very least, ask a question! Short waves can propagate all over the

world. The receiver of instructions from a Numbers Station can rest assured that no one is logging her reception of coded messages which would, if she received her instructions via telephone from a foreign country, expose her to Traffic Analysis, and the inevitable questions of, what is it that you are saying in these monthly calls of 45 seconds duration that we have logged as coming from Langley Virginia? Computers in telephone exchanges can analyze phone use, and expose these telltale patterns; this is known as Traffic Analysis, and with the proper interpretation, could deliver up many potential operatives if telephones were used by spies. Everyone knows that all calls entering and leaving the UK are listened to and logged, and this must also be true to at least the same extent in The Czech Republic, Russia, Cuba, Turkey the USA and Germany. No. Telephones, as wonderful as they are, would be far too dangerous for spies to use for communications on a regular basis.

Numbers Stations send messages that are absolutely secure. They use a cryptosystem known as a one time pad; a very simple and very strong symmetric cipher, which means that the same key is used for encryption and decryption, the key being a string of random numbers. Computer generated random number keys are not suitable for this purpose; one-time pads that use pseudo-random numbers are open to attacks which attempt to compute part or all of the key. It is more secure to generate the key using the natural randomness of



Japanese Embassy Piccadilly

quantum mechanical events (such as those detected by a Geiger counter), since quantum events are the only source of truly random information in the universe.

With a one-time pad, there are as many bits in the key as in the plaintext. This is the primary drawback of a one-time pad, but it is also the source of its perfect security. It is essential that no portion of the key ever be reused for another encryption session (hence the name one-time pad), otherwise cryptanalysis can break the cipher. If the key is truly random, a one-time pad is perfectly secure against ciphertext-only cryptanalysis. This means that an attacker cannot compute the plaintext (original message) from the ciphertext (encrypted message) without knowledge of the key, even via a brute force search of the keyspace. Trying all possible keys doesn't help you, because all possible plaintexts are equally likely decryptions of the ciphertext. This result is true regardless of how few bits the key has or how much you know about the structure of the original plaintext.

To demonstrate this, suppose you intercept a very small, 8-bit, ciphertext. You know it is either the character F or the character A encrypted with a one-time pad. You also know that if the message is A, the operative will assassinate his target, and if it is F, the operative will flee the country. All you are missing is the key, a very small one-time pad. You assign your crack staff of cryptanalysts to try all possible one-time pads (exactly 256 different possibilities); this is a brute

force search of the keyspace. The results of this brute force search is that your staff finds one key that decrypts the ciphertext to A and one that decrypts it to F. And you still don't know which one is the actual plaintext.

Remember that most Numbers Station messages are designed to be decrypted by hand. Clearly, the Numbers Station is one of the most powerful communication systems ever devised. It offers absolute security, complete recipient anonymity and it is very easy to use, needing only a pencil, a piece of paper and an ordinary portable radio.

This of course does nothing to explain why these systems are used in the first place; the end of the Cold War, logically, should have resulted in short wave listeners observing a reduction in the use of Numbers Stations, when in fact, the reverse has been the case. Russian stations are still being heard, as are the eastern European stations like the Czechoslovakian OLX, which can be heard every day transmitting, ...OSSUM FEEDOOM OSSUM DEVIET DEVIET SHEST... Where are they getting the money to finance the hundreds of operatives they are controlling all over the world? How has it come to pass that such blatant, easily audible communications can go unquestioned by the general population? Most short wave listeners seem to be uninterested in Numbers Stations, perhaps due to the regularity of the transmissions. They take them as just another type

of noise that is to be filtered out and ignored. The unchallenged existence of Numbers Stations is a symptom of the somnambulistic state that the world's educated populations live in. Anything can be done to this population, and no one will notice or react in any way. If German phonetic numbers were transmitted by the BBC World Service immediately after the news, not an eyebrow would be raised, nor a question asked. Attitudes to the Numbers Station situation are similar to the There is no such thing as the Mafia mind set that was paraded around in the 1950s. Ostrich Posturing.

I wander thro' each charter'd street,
Near where the charter'd Thames does flow,
And mark in every face I meet,
Marks of weakness, marks of woe.

In every cry of every Man,
In every Infants cry of fear,
In every voice, in every ban,
The mind-forg'd manacles I hear.

From 'London' William Blake 1794



Complete Lincolnshire Poacher transcript

Transcribed September 26 1996 21:00 13.375usb London

Lincolnshire Poacher x12
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04022 04022 65795 65795 63699 63699 75494 75494 27113 27113 80431 80431 64559 64559 88391 88391 55111 55111 04232 04232
94571 94571 16108 16108 54769 54769 22363 22363 57267 57267 00473 00473 04415 04415 84529 84529 48108 48108 78257 78257
35750 35750 00125 00125 00972 00972 93238 93238 64992 64992 26438 26438 21189 21189 07732 07732 86970 86970 41073 41073
66933 66933 66770 66770 50246 50246 46424 46424 38644 38644 65703 65703 78450 78450 83540 83540 11965 11965 05537 05537
52013 52013 47316 47316 70356 70356 08017 08017 05198 05198 52850 52850 32733 32733 48057 48057 92573 92573 28092 28092
82209 82209 15080 15080 60040 60040 50477 50477 63942 63942 63699 63699 37038 37038 21904 21904 54520 54520 42624 42624
04285 04285 98545 98545 45667 45667 93307 93307 89293 89293 71254 71254 11866 11866 75828 75828 88178 88178 09520 09520
50685 50685 06968 06968 96858 96858 64049 64049 92490 92490 83954 83954 94863 94863 94473 94473 91415 91415 78605 78605
99132 99132 02286 02286 35966 35966 70494 70494 26640 26640 04531 04531 91108 91108 93350 93350 22759 22759 25047 25047
43325 43325 70480 70480 17455 17455 02114 02114 38097 38097 87095 87095 70293 70293 16126 16126 21448 21448 61963 61963
51151 51151 63751 63751 93326 93326 32975 32975 59964 59964 97770 97770 49281 49281 75247 75247 35139 35139 18632 18632
20320 20320 53244 53244 05033 05033 97922 97922 48038 48038 54522 54522 19480 19480 70414 70414 87957 87957 38298 38298
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19948 19948 80098 80098 07838 07838 99141 99141 92233 92233 99877 99877 52352 52352 75256 75256 41706 41706 40313 40313
77828 77828 21701 21701 67649 67649 56787 56787 22710 22710 50739 50739 55263 55263 80172 80172 00887 00887 80085 80085
44102 44102 99870 99870 20899 20899 05744 05744 32309 32309 05564 05564 59870 59870 09832 09832 95878 95878 64883 64883
58778 58778 43222 43222 40261 40261 90977 90977 74673 74673 52360 52360 50760 50760 54182 54182 35043 35043 69885 69885
10637 10637 24575 24575 35391 35391 65522 65522 03354 03354 55063 55063 05265 05265 78539 78539 17813 17813 46367 46367

gong gong, gong gong, gong gong
Lincolnshire Poacher x6

Bibliography

Secret Signals - The Euronumbers Mystery

by Simon Mason

Tiare Publications ISBN 0-936653-28-0

With almost 70 pages on European Numbers Stations, 'Secret Signals' reviews both past and present activity. A list of over 300 Frequencies, plus schedules and transmission times is also included; perhaps most interesting are details of clues found in transmission mistakes and traffic excerpts.

Available from: Tiare Publications PO Box 493 Lake Geneva, WI 53147 USA.

Cost: \$9.95 plus \$3.00 postage. Foreign payments must be made in US funds. Cheques drawn on a bank which has a US correspondent Bank. Postal money orders, VISA and Mastercard Accepted.

The Underground Frequency Guide

by Donald W. Schimmel

The third edition contains 209 pages and is split into 5 sections:

- 1) Numbers Stations.
- 2) Mystery Networks.
- 3) Four Puzzles (including Single Letter Beacons)
- 4) Miscellaneous Mystery Signals.
- 5) The Underground Frequency List.

Available from: Hightext Publications Inc PO Box 1489, Solano Beach, CA 92075 USA

Or: Gazelle Book Service Ltd., Falcon House Queens Square, Lancaster, LA1 1RN UK

Cost: £15.49 Including UK Postage. Add £1.85 for Airmail

Intercepting Numbers Stations

by Langley Pierce

Around 94 pages of detailed information. The book starts with the history of Numbers Stations and goes on to detail each operation by intelligence community - CIA (USA), MI6 (Great Britain), BND (Germany), etc. Each section is well laid out with details of each station's characteristics.

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